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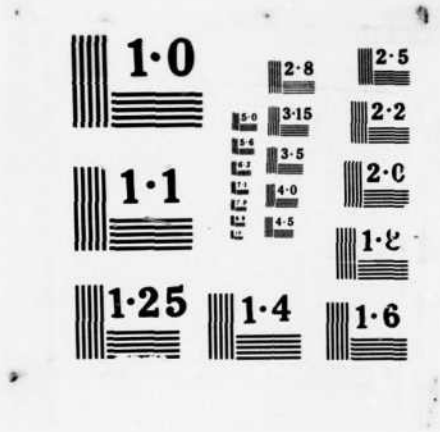
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NAVAL POSTGRADUATE SCHOOL

Monterey, California

THESIS

RETENTION BEHAVIOUR OF DRAFTEES AND VOLUNTEERS

by

Kemalettin GUR

December 1988

Thesis Advisor David R. Henderson

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This thesis presents evidence on this issue. We are able to compare retention behaviour and service lengths of draftees and volunteers in the same cohort by using data files consisting of enlistees during lottery draft years. Keywords:

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Retention Behaviour of Draftees and Volunteers

by

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Ltjg, Turkish Navy
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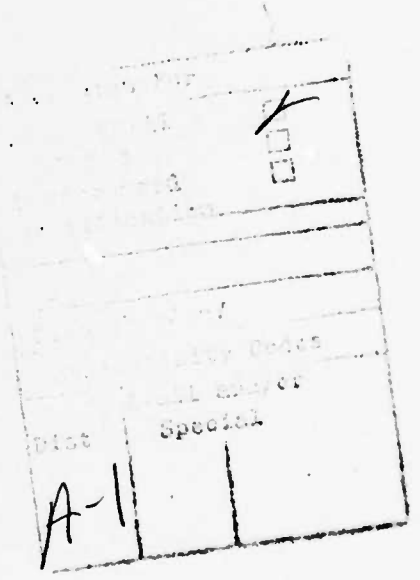
ABSTRACT

Experts believe that draft would require a larger number of accessions, since draftees and draft-motivated volunteers are more likely to leave military service than volunteers at their first opportunity.

This thesis presents evidence on this issue. We are able to compare retention behaviour and service lengths of draftees and volunteers in the same cohort by using data files consisting of enlistees during lottery draft years.



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I. INTRODUCTION

A. PRELIMINARY

Economists have theorized that volunteers should have higher retention rates than draftees. Because draftees are in the military unvoluntarily, they are expected to be more likely to leave the military at their first opportunity. Volunteers on the other hand, show by their choice that they have a taste for military life. Therefore, they are more likely to stay. [Ref. 1]

In this thesis, I compare retention behaviour of draftees and volunteers in the same cohort by using the data files on enlistees during lottery draft years.

The general area of this research is the analysis of manpower data. The main object is to compare retention rates and the effect of educational factors between draftees and volunteers in the same period for the United States military services. I examine the cohorts of draftees and volunteers who entered the military services in 1971 and 1972. The results lead us to understand better the effect of draft and volunteer force policies.

In my research I answer following questions:

1. Is there a significant difference between the retention rates for draftees and those for volunteers?
2. Are retention rates different for high school and non-high school graduates? If so, what is the effect of high school education on retention rates for draftees and for volunteers?
3. Is there any difference between retention rates for the 1971 and 1972 cohorts?
4. What are the policy implications of the research results?

B. LITERATURE REVIEW

To understand better what my study presents, the reader needs some background about the lottery system and about events that occurred during the lottery draft years: 1970, 1971, 1972. I also review some of the studies done on the effect of educational factors on retention rates.

Reference 2 gives an excellent history of the lottery draft.[1] A chronology of important events involving the lottery draft is given in Appendix A. Events that occurred during the lottery draft period are extremely important for understanding the results of this thesis. In particular, the number of monthly draft calls, the lottery numbers, the

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1 In this thesis, history of the lottery draft is summarized from Reference 2.

ceilings, and legislation to reform the draft system all affected the behaviour of enlistees during the lottery draft and during later periods.

1. The Lottery

After the Gates Commission recommended moving toward ending the draft, the government's main objective was to reduce the draft calls. Withdrawals from Vietnam also led the military services to reduce force strength. Lottery draft years were transition years for the volunteer force. To operate the draft system more fairly, the government implemented some reforms during the transition years.

> In December 1969, Selective Service held the first draft lottery since 1940. The President's lottery proposal, when finally implemented, would ameliorate most of the objectionable features of the old system. Under the lottery the order of call was provided by random selection of birthdays. The drawing would be made prior to a young man's 19th birthday, and his 19th year would be his year of maximum vulnerability . If his sequence number was not called up during his 19th year, the young man was placed lower in the order of call. For practical purposes, short of all-out mobilization, his vulnerability was limited to one year. The primary age group of 19-year-olds replaced the old procedure of the "oldest first" order of call. With the order of call provided by chance, it was not necessary to grant wholesale deferments to reduce the size of the manpower pool so that virtually all qualified and available 26-year-olds would serve. The lottery system thus facilitated the curtailment of deferments. [Ref. 2: pp.277]

Because draft calls were done beginning from the smallest lottery number, individuals who had smaller lottery numbers had the greatest chance of being drafted.

a. The Lottery Draft During 1970

The lottery did not run smoothly during the early months of 1970. The main reason was the local boards. Some local boards drafted individuals who had lottery numbers as high as 150 while the other boards did not have to draft individuals who had lottery numbers more than 30 or 40. In order to solve the problem, Selective Service established monthly ceilings on lottery numbers. On the other hand, because of the ceiling on lottery numbers, many local boards could not draft enough enlistees to meet their quotas. In other words, shortfalls occurred during 1970.

In 1970, draft calls were 163,000. Because of the shortfalls in the early months of 1970, March and April draft calls were 19,000 per month. The high number of draft calls decreased certainty about one's chances of being drafted and caused some speculations in the public. To overcome these speculations, the government reduced the

draft calls: draft calls of 15,000 were announced for May and June. It was agreed that draft calls would decline after June and would be about 150,000 for the year.[2]

In July 1970, the Army requested 42,000 draftees for September to December 1970. This number was over the anticipated 35,000 call that had been approved by the Secretary of Defense in April for planning purposes. Finally, 39,000 draft calls were approved for the four-month period, distributed as follows: 12,000 for September; 12,000 for October; 8,000 for November; and 7,000 for December. The draft calls totaled 163,500 for the entire year.

b. The Lottery Draft During 1971

During this period, there were some important reforms to the draft system. The direct national call, authority to end student deferments, and the guarentee of procedural rights became law in September 1971. The national call changed the system of draft quotas allocated to local boards and states. The new system brought the idea of inducting individuals on a national basis. The old system of draft quotas had reduced the draft burden on states with proportionally more volunteers. According to the national call, equality was not among states but among individuals. Other than the direct national call, deferments for marriage, paternity, graduate school, particular occupations, and undergraduates had been eliminated. All these reforms brought equality for qualified young men.

Draft calls could not be reduced in the early months of 1971. Draft calls were 17,000 per month from January through March. The April call was 15,000 and the May call was 14,000. In spite of the "no raise in draft calls" rule , these numbers were high. Because of further Vietnam withdrawals, the May call was cancelled and replaced a call of 20,000 for May through June. The size of the Congressional cut in Army strength was still not certain. Finally, the Department of Defense agreed on 16,000 calls for May through June 1971 and 16,000 calls for July through August. Draft calls were 88,000 for the first eight months of 1971. In October, the Army had to reduce 300,000 from its June 1971 strength of 1,123,810 to its authorized strength of 812,000 for June 1972. This caused 10,000 draft calls for October through December. The Army entered the new fiscal year of 1972 with an "overstrength". The number of draft calls was 98,000 for 1971. Reduction in the stength level forced the Army to release over 200,000 personnel before their terms of service expired.

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2 Secretary of Defense Laird's remarks before joint Community Orientation Conference 40, April 28, 1970, OSD (Public Affairs files).

c. The Lottery Draft During 1972

Draftees were not needed for January through March 1972. On March 6, it was announced that 50,000 or less draftees would be needed for 1972. In May, the Army estimated 17,000 draft calls for the remaining months of 1972. Finally, draft calls were 50,000 for 1972. The announcement of the end of draft calls was made on January 27, 1973.

Table 1 summarizes the reductions in draft calls during 1970, 1971, and 1972.

Table 1. DRAFT CALLS FOR 1970, 1971, 1972

Calendar Year	Draft Call
1970	163,500
1971	98,000
1972	50,000

2. Effect of Educational Factors on Retention Rates

Quality is an important issue for the military services. Most of the studies dealing with quality of enlistees examined the effect of educational factors and of the Armed Forces Qualification Test(AFQT).

> The relative ability of military personnel to learn military skills and perform creditably in military units is usually referred to as the "quality" of the personnel. The normal measures of quality for enlisted accessions are the percentage that have graduated from high school, a sound indicator of the likelihood of succesfully completing an enlistment, and scores on the AFQT, a good predictor of success in military training. [Ref. 3]

Earning a high school diploma is an important indicator of the probability that a new enlistee will adjust successfully to military life. Also, as the research memorandum "Summary Report: Manning the 600-ship Navy", done by the Center for Naval Analyses (CNA) noted, high school diploma graduates(HSDGs) are preferred by the Navy because they are substantially more likely to complete their first term. According to the Department of Defense, "A high school diploma is the best measure of a person's potential for adapting to life in the military." [Ref. 4]

In the study of "Military Technolgy and Defense Manpower", the effect of the high school diploma was explained in the following manner:

Through the years, experience has indicated that high school graduates are more likely than dropouts to perform successfully in the armed forces. On average, they are involved in fewer disciplinary incidents, they are promoted more rapidly, and they are more likely to attain eligibilty to reenlist. [Ref. 5]

C. DESCRIPTION OF THE DATA; LIMITATIONS.

I use the Defense Manpower Data Center (DMDC) cohort files. [Ref. 6] These files have data about the enlistees for the 1971, 1972, and 1973 cohorts. I shall deal with the 1971 and 1972 cohorts separately. These cohorts are the lottery-draft cohorts. Lottery-draft cohorts give us the opportunity to observe behaviour of both draftees and volunteers in the same cohort. The 1971 cohort file consists of 557,325 enlistees.[3] The 1972 cohort file consists of 434,101 enlistees. Each file has 195 variables about enlistees. The 1971 cohort file consists of enlistees whose entrance date of service was between July 1970 and June 1971. The 1971 cohort file consists of enlistees whose entrance date of service was between July 1971 and June 1972. Enlistees were observed until September 1987 for each fiscal year during this period. The ones who were out of service settled in the loss files and the ones who were still in service settled in the master files.

I used the following variables in the files:

1. Lottery numbers
2. Service of accession
3. HYEC (highest year of education)
4. Term of enlistment
5. Date of entry
6. Date of separation
7. Flag year

Lottery numbers ranged from 1 through 366. Each enlistee had a lottery number based on his birth date. Lottery numbers were declared for days of the year by a random choice procedure.

The service of accession variable consists of numbers between 1 and 23, and these numbers represent the following service or type of accession for enlistees.

1. Army
2. Navy
3. Air Force

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3 The term enlistee is used here to refer to both persons who volunteered and those who were drafted.

4. Marine Corps
5. Preinductee
6. Inductee
7. Army Reserve
8. Navy Reserve
9. Air Force Reserve
10. Marine Corps Reserve
11. Coast Guard
12. Coast Guard Reserve
13. Navy Inductee
14. Air Force Inductee
15. Marine Corps Inductee
16. Coast Guard Inductee
17. National Inductee
18. Air Guard
19. Vista
20. Job Corps
21. Peace Corps
22. Merchant Marine
23. Other

In my study, I use the first six categories: Army, Navy, Air Force, Marine Corps, Preinductee, Inductee. If the service of accession of an enlistee is inductee or preinductee, we can understand that he was certainly drafted. The first four services of accession show enlistees who joined the military services voluntarily.

Highest year of education variable shows the education level of enlistees. This variable has 13 categories:

1. 1-7 years of education
2. 8 years of education
3. 1 year of education in high school
4. 2 years of education in high school
5. 3-4 years of education in high school (no diploma)
6. High school diploma

7. 1 year of education in college
8. 2 years of education in college
9. 3-4 years of education in college (no degree)
10. College graduate
11. Masters degree or equivalent
12. Doctorate degree or equivalent
13. High school equivalency diploma.

Categories 1 through 5 and 13 show that the enlisted person was a non-high school graduate. Categories 6 through 12 show that enlisted person had at least a high school diploma.

Term of enlistment shows the first enlistment period. We can not get the other enlistment periods from the data. Thus, data restrictions prevent us from having retention rates during service periods of enlistees.

Date of entry and date of separation variables are given as day, month, and year. The exact entrance and separation date of enlistees can be obtained by looking at these two variables.

There are two files for each cohort: master file and loss file. Data about enlistees were recorded in the master files when they entered the military services and checked at the end of every fiscal year until September 1987. The ones who left the military were recorded in the loss file.

The flag year-variable consists of four-digit negative or positive numbers. The first two numbers show the year and the last two numbers show the month of the year. A positive value indicates that the enlistee was still in service; a negative value indicates that the enlistee was out of service. If the enlistee was out of service, we can obtain his separation date by looking at the separation date variable. If the enlistee was still in service, we should have a positive 8709 value in the flag-year variable. In other words, a value of 8709 indicates September 1987, which was the last date that corrections to the files were done, and a positive sign in front of 8709 indicates that the enlistee was still in service at that time.

D. ORGANIZATION OF THE STUDY

In the first chapter, an attempt is made to separate "true" draftees and true volunteers from the data set. For this, I used the lottery number ranges which DMDC recommended for "true" draftees and true volunteers. [Ref. 7] After that, I examined the

retention rates and the service lengths for "true" draftees and true volunteers in each of the 1971 and the 1972 cohorts.

In the second part of chapter one, I predicted the lottery number ranges for "true" draftees and true volunteers relying on the literature review and on the results in the first part of chapter one. I examined the retention rates and service lengths for "true" draftees and true volunteers with new lottery number ranges and compared them with the preceeding results.

In the second chapter, I examined the effect of education factors on retention rates and on service lengths of enlistees.

II. ANALYSIS OF RETENTION RATES FOR THE 1971 AND THE 1972 COHORTS

In this chapter, I deal with the 1971 and the 1972 cohorts separately. First, I report retention rates for draftees and volunteers at the end of the first enlistment period for each cohort. After that, I examine service lengths for draftees and volunteers in the same cohort and try to get some conclusions about retention rates. From the data, we can not know how many times a person reenlisted after the initial reenlistment. All we can know is the amount of time he stayed, that is, the length of service. Because of that, we also deal with the service lengths of enlistees in this chapter.

A. METHODOLOGY

I obtained the data from DMDC . There are two files in the data set: one for the 1971 cohort and the other for the 1972 cohort. Each enlistee in these files was observed between his entrance date and his separation date until September 1987. There was a loss section and a master section in each file. Enlistees were recorded to the master section when they entered the military services. At the end of each fiscal year, files were checked and the ones who had left the service were recorded to the loss section. There were 557,325 enlistees in the 1971 cohort and 434,101 enlistees in the 1972 cohort.

The Statistical Analysis System (SAS) procedures were used for examining the data set. The "Proc Frequency" procedure was used to compute retention rates and service lengths.

B. DATA ANALYSIS

The most difficult task in analyzing the data was to specify a range of lottery numbers for draftees and a range for volunteers. DMDC recommended that I assume individuals assigned lottery numbers 1 through 120 to be draftees or draft-induced volunteers, and those assigned numbers 241 through 366 to be volunteers. Those assigned lottery numbers between 120 and 241 were assumed to be in a "gray" area. In other words, we cannot say much about this latter group as to whether they were drafted or they were volunteers. Individuals who had lottery numbers between 1 and 120 certainly knew that they would be selected as draftees. Individuals who had a lottery number between 241 and 366 knew that they would not be drafted. On the other hand, the ones who had the lottery numbers between 120 and 241 could not be sure that they

would not be drafted. Actually their situation depended on the number of volunteers whose lottery numbers were between 1 and 366. If the number of volunteers from lottery numbers 1 through 366 were high, then the ones from the "gray" area were less likely to be drafted. However, it was hard for the ones in the "gray" area to predict how many volunteers would be from the lottery numbers 1 through 366.

For each cohort, the enlistees we study are in one of six categories:

1. Army
2. Navy
3. Air Force
4. Marine Corps
5. Preinductee
6. Inductee

All preinductees and inductees joined the Army: they are listed separately to distinguish them from those who joined the Army voluntarily. For the first four types of service of accessions, an enlisted person is considered a true volunteer if his lottery number is between 241 and 366; he is assumed to be a draft-motivated volunteer if his lottery number is between 1 and 120. Those in the last two types of service of accession are assumed to be "true" draftees. As a result, we will call an enlisted person a "true" draftee if two conditions hold: his lottery number is 1-120 and his service of accession is preinductee or inductee. On the other hand, we will call an enlisted person a true volunteer when his lottery number is 241-366 and his service of accession is one of the first four types. Note that the "draftee" category will include some people who are true volunteers: that is, some of those with low lottery numbers who were drafted would have joined voluntarily anyway. Therefore, the category of draftees is itself a "gray" area, but is somewhat more distinct than what we have called a "gray" area.

In the 1971 and the 1972 cohorts, I will not use draft-motivated volunteers whose lottery numbers are 1-120 and whose services of accession are Army, Navy, Air Force or Marine Corps, and volunteers whose lottery numbers are 241-366, service of accessions are other than Army, Navy, Air Force, Marine Corps. The number of draft-motivated volunteers was 160,700 for the 1971 cohort and 158,054 for the 1972 cohort. The number of volunteers whose service of accession was other than the first four services was 5,899 for the 1971 cohort, and 1,376 for the 1972 cohort. I will be using enlistees in the "gray" area whose lottery numbers are between 121 and 241. We cannot identify the enlistees in this "gray" area as either draftees or volunteers. In this "gray"

area, we will not deal with enlistees whose service or type of accession is outside the first six categories.

The original population also shrinks due to erroneous dates or zero lottery numbers, and due to enlistees who could not be observed for any reason during their service periods. For example, some entrance dates which were listed as the 31st of certain months or the 29th of February were rejected because, in reality, there were no such dates. The lottery numbers should have been 1 through 366 depending on the number of days in a year. I deleted all information about enlistees who had zero lottery numbers and erroneous entrance or separation dates. The other reason to delete data was the . g year which showed whether enlistees were still in service or not. The flag-year column has four-digit numbers. The first two numbers show the year and the last two numbers show the month. The flag year column should have negative values such as -7109 for enlistees who left service, and positive 8709 value (1987 was the last fiscal year in which the data set was corrected) for enlistees who were still in the service. In the flag years, I encountered some zero values and some positive values less than 8709 which show that data cannot be gathered about these enlistees or that enlistees could not be followed until the end of service period. I deleted all information about enlistees who had those unacceptable numbers in their flag years. The number of observations lost due to erroneous dates for "true" draftees, "grays," and true volunteers was 9,297 for the 1971 cohort and 10,206 for the 1972 cohort. Losses due to miswriting of flag years were 31,798 for the 1971 cohort and 23,760 for the 1972 cohort. Losses due to zero lottery numbers were 5 for the 1971 cohort and 2 for the 1972 cohort. Final populations were 349,636 for the 1971 cohort and 240,703 for the 1972 cohort.

Note that the order in my deleting process is important for getting the number of losses which were mentioned above. Because some of enlistees might have had two or more deleting reasons together, the order of deleting process may change the number of losses for the deleting reasons. However, the final populations for the 1971 and the 1972 cohorts will not change with the order in deleting process. In my study, I first deleted unacceptable flag years and then deleted zero lottery numbers left in the 1971 and the 1972 cohorts. Finally, I separated true volunteers, "grays," and "true" draftees in each cohort, and deleted erroneous dates for only true volunteers, "grays," and for "true" draftees in each cohort.

Table 2 shows the final populations for the 1971 and the 1972 cohorts. For further data interpretations, I will refer to the populations whose sizes are shown in this table.

Table 2. FINAL POPULATIONS FOR THE 1971 AND THE 1972 COHORTS: METHOD 1

	"True" draftees	"Grays"	True volunteers	Total
1971 COHORT	89,742	166,021	93,873	349,636
1972 COHORT	19,842	112,732	108,129	240,703

1. Retention Rates for the 1971 and the 1972 Cohorts at the End of First Enlistment Period

If the service length of an enlisted person is longer than his first term of enlistment period, I accepted the enlisted person as reenlisted. This procedure allows us to examine retention rates only for the end of the first enlistment period. I divide the 1971 and the 1972 cohorts into three groups: "true" draftees, "grays," and true volunteers, by using the procedure mentioned above. Table 3 shows the retention rates for the 1971 cohort at the end of the first reenlistment period.

Table 3. REENLISTMENT RATE OF THE 1971 COHORT: METHOD 1

	Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"TRUE" DRAFTEES	89,742	12,263	13.7
"GRAYS"	166,021	43,175	26.0
TRUE VOLUNTEERS	93,873	32,267	34.4

Comparing retention rates at the end of the first enlistment period for "true" draftees, "grays," and true volunteers in the 1971 cohort, we see that the results are close to our expectations. Retention rates for true volunteers are more than twice as great as those for "true" draftees. Retention rates for those in the "gray" area are between the retention rates for "true" draftees and true volunteers. As I mentioned before, we don't *know how many* volunteers and draftees are in the "gray" area. By looking at the retention rates for "true" draftees and true volunteers, we can say that as the proportion of true volunteers to "true" draftees increases in the "gray" area, the retention rate of enlistees in the "gray" area should also increase.

Table 4 shows the retention rates for the 1972 cohort at the end of the first enlistment period.

Table 4. REENLISTMENT RATE OF THE 1972 COHORT: METHOD 1

	Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"TRUE" DRAFTEES	19,842	2,678	13.5
"GRAYS"	112,732	38,323	34.0
TRUE VOLUNTEERS	108,129	38,126	35.3

As before, comparison of retention rates for "true" draftees, enlistees in the "gray" area, and true volunteers in the 1972 cohort show that the lowest retention rate was for "true" draftees and the highest retention rate was for true volunteers. The difference between the retention rates of "true" draftees and true volunteers is similiar to that for the 1971 cohort. However, unlike the case for the 1971 cohort, the retention rate for those in the "gray" area of the 1972 cohort was very close to that of true volunteers. This leads us to believe that most of enlistees in the "gray" area of the 1972 cohort were actually true volunteers.

As a result, the retention rates were higher for true volunteers in both the 1971 and the 1972 cohorts. Retention rates for true volunteers were more than twice as great as those for "true" draftees in both cohorts. The only difference between the 1971 and the 1972 cohort is in the "gray" areas. The retention rate for the "gray" area of the 1972 cohort is signifiantly higher than the "gray" area of the 1971 cohort. We would expect that, as the number of true volunteers increases in the "gray" area, the retention rate will also increase. Therefore, we may conclude that there were more true volunteers in the "gray" area of the 1972 cohort than in the "gray" area of the 1971 cohort.

Retention rates were around 13 percent for "true" draftees and 35 percent for true volunteers. We can conclude that draftees were less likely to reenlist in the 1971 and the 1972 cohorts.

In my research, there are two major problems with the data. I believe that these problems will not affect the main result that the reenlistment rate is higher for true volunteers, but they may somewhat affect the ratio of retention rates between "true" draftees and true volunteers.

First, we can come to a conclusion on retention rates only at the end of the first enlistment period due to data restrictions.

Second, we divided the lottery numbers from 1 through 366 into three roughly equal sections as DMDC recomended, and named the first section as "true" draftees, second section as the "gray" area, and the third section as true volunteers. This process creates a large "gray" area, about which we cannot say much.

For solving the first problem, I examine the service lengths of the enlistees. For the second problem, I try to make the "gray" area smaller.

2. Service Lengths for the 1971 and the 1972 Cohorts

In this section, I examine service lengths of enlistees for the 1971 and the 1972 cohorts separately. Since we don't have all the enlistment periods except for the first term of enlistment for enlistees in the data, I examine service lengths of enlistees to get some idea about their service periods. We know that the military services would like to have longer service periods for enlistees for two main reasons: first, long service periods will decrease training costs. Second, it will affect the force effectiveness level positively. If enlistees stay in the services for long periods, the military services will need fewer trainers. Fewer trainers mean lower costs. Long service periods will also increase the number of careerists in the force. As the number of the careerists increases, the level of force effectiveness will increase. [Ref. 8]

I again divide both the 1971 and the 1972 cohorts into "true" draftees, "gray" area, and true volunteers by using the same procedure mentioned above. I assign lottery numbers 1 through 120 for draftees, 121 through 240 for the enlistees in the "gray" area, and 241 through 366 for volunteers. I examine the service length of "true" draftees, "grays," and true volunteers in the 1971 and the 1972 cohorts separately. By using the "Proc Frequency" in SAS, I obtain the percentage "true" draftees, "grays" and true volunteers who had the same service lengths, year by year. For simplicity, I present my results with tables and figures for each cohort. Table 5 and Figure 1 show service lengths for "true" draftees, "grays," and true volunteers in the 1971 cohort. Table 6 and Figure 2 show service lengths for "true" draftees, "grays," and true volunteers in the 1972 cohort.

Table 5. SERVICE LENGTHS FOR THE 1971 COHORT: METHOD 1

Length of Service Period (years).	"True" Draftees (%).	"Grays" (%).	True Volunteers (%).
0-1	12.3	14.0	15.6
1-2	77.7	35.9	20.4
2-3	5.5	15.7	18.6
3-4	0.9	16.1	19.4
4-5	0.5	2.8	3.7
5-6	0.6	2.4	3.2
6-7	0.5	1.8	2.6
7-8	0.6	2.1	2.8
8-9	0.3	1.2	1.8
9-10	0.2	0.9	1.2
10-11	0.2	0.5	0.8
11-12	0.1	0.5	0.8
12-13	0.2	0.5	0.7
13-14	0.1	0.5	0.7
14-15	0.1	0.4	0.6
15-16	0.1	0.3	0.5
16>	0.1	4.4	6.6
Total	100	100	100

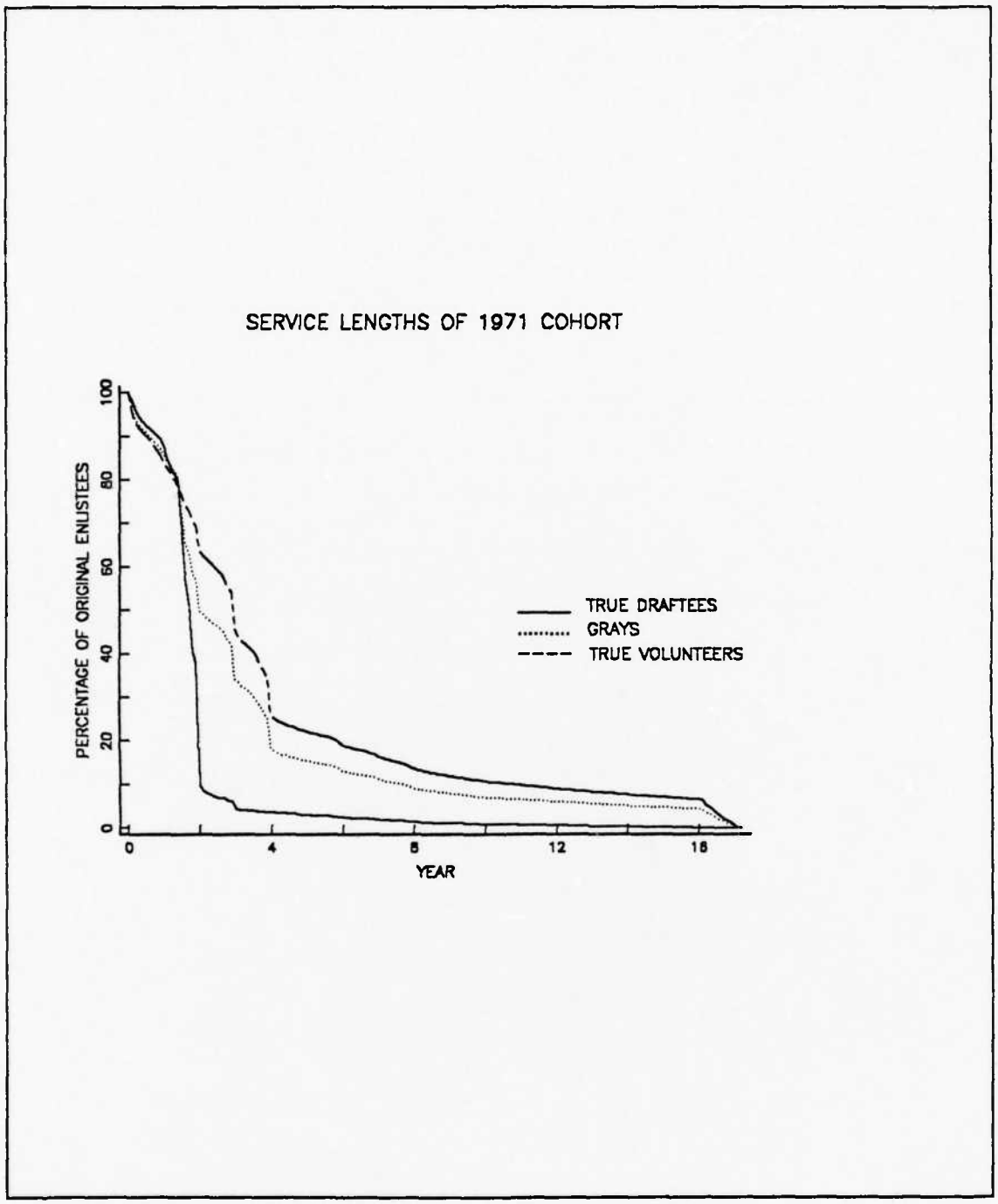

Figure 1. Service lengths for the 1971 cohort: METHOD 1

Table 6. SERVICE LENGTHS FOR THE 1972 COHORT: METHOD 1

Length of Service Period (years).	"True" Draftees (%).	"Grays" (%).	True Volunteers (%).
0-1	13.7	15.4	15.6
1-2	75.1	19.2	17.7
2-3	6.5	20.0	20.1
3-4	0.8	19.6	19.7
4-5	0.6	4.0	4.2
5-6	0.7	3.3	3.3
6-7	0.6	2.5	2.5
7-8	0.6	2.8	3.0
8-9	0.3	1.7	1.8
9-10	0.2	1.3	1.3
10-11	0.3	0.7	0.8
11-12	0.1	0.7	0.8
12-13	0.2	0.8	0.8
13-14	0.1	0.6	0.6
14-15	0.1	0.5	0.6
15>	0.1	6.9	7.2
Total	100	100	100

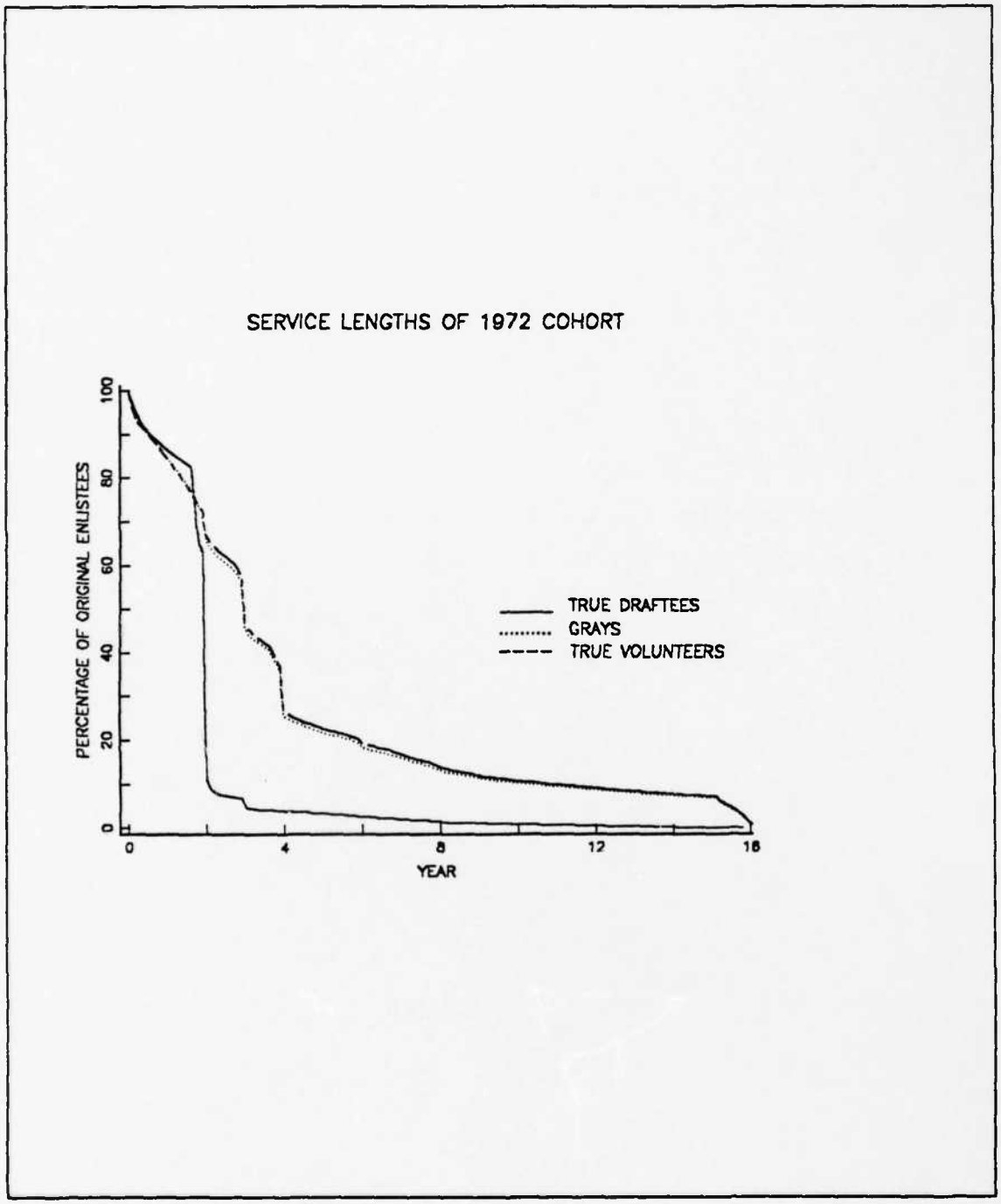

Figure 2. Service lengths for the 1972 cohort: Method 1

Table 5 and Figure 1 show service lengths of enlistees in different perspectives. Table 5 gives the percentage of "true" draftees, enlistees in the "gray" area, and true

volunteers in relation to their service lengths for the cohort that enlisted between July 1970 and June 1971. As an example, we can understand from Table 5 that 12.3 percent of "true" draftees, 14.0 percent of "grays," and 15.6 percent of true volunteers had service lengths of one year or less. To get the percentage of enlistees who had service periods of 2 years or less, we should add the first two rows. By adding two rows, we will obtain 90 percent of "true" draftees, 49.9 percent of "grays," and 36 percent of true volunteers. We can also see from Figure 1 that at the end of a two-year service period, the number of "true" draftees decreased by 90 percent, the number of enlistees in the "gray" area decreased by 49.9 percent, and number of true volunteers decreased by 36 percent. From Table 5, we can see that the percentages of true volunteers for long service periods were higher than those for "true" draftees.

It is apparent from Figure 2 that true volunteers and "grays" had the longest service lengths. In other words, the decrease in the number of true volunteers was less sharp than for "true" draftees during the service period. For true volunteers, sudden decreases occurred by the end of the first four-year period. The reason is the three or four year first enlistment period for true volunteers. For "true" draftees, sudden decreases can be seen at the end of first two years of service period. The reason is the two year first enlistment period for draftees. By the end of the first two years, almost 90 percent of "true" draftees left the services. At the end of the first four years, 74 percent of true volunteers left the services and 26 percent of them stayed in the services. On the other hand, I have found a 34 percent reenlistment rate for true volunteers at the end of the first enlistment period. From Figure 1 and Figure 2, the 8 percent difference may be explained by lower retention rate for true volunteers during the first 8 years of service. I accepted as reenlistees true volunteers who had first enlistment period of 3 years if their service period were greater than their first enlistment period. Table 6 shows that 19.7 percent of true volunteers left the military between 3 and 4 years of service. Some of those who left the military in this period were the ones who had reenlisted after the 3-year first enlistment period. Because of the people who reenlisted after the 3 years of service and left the services for any reason between 3 and 4 years of service, the retention rate is 8 percent less at the end of 4 years of service than what I found by looking at the retention rate at the end of first enlistment period.

Enlistees in the "gray" area follow an intermediate pattern. This pattern depends on how many "true" draftees and true volunteers are in the "gray" area. If the number of "true" draftees in the "gray" area is high, the pattern should be closer to the pattern of true draftees; otherwise it will be closer to the pattern of true volunteers.

Unfortunately, we don't have the number of "true" draftees and true volunteers in the "gray" area.

From Figure 1, we see that enlistees in the "gray" area of the 1971 cohort follow a pattern closer to that of true volunteers than that to that of "true" draftees. On the other hand, we should not forget that if we change the ranges of lottery numbers used to ascertain whether people are "true" draftees, "grays," or true volunteers, then the service length patterns for people in these three categories will most likely differ.

Table 6 and Figure 2 are similiar to those for the 1971 cohort. With the same method I use for the 1971 cohort, we can interpret results from Table 6 and Figure 2 for the 1972 cohort.

Differences in service lengths for "true" draftees and for true volunteers are similiar to those for the 1971 cohort. So, we can conclude again that true volunteers have higher service lengths than "true" draftees.

The most important difference between the 1971 and the 1972 cohort is for those in the "gray" area. In the 1972 cohort, enlistees in the "gray" area show very similiar patterns to true volunteers. We know from the literature review that there was more certainty for the individuals who would be drafted in the 1972 cohort compared with the 1971 cohort. So this might have wiped out the "gray" area in the 1972 cohort. This suggests that there were few draftees in the "gray" area of the 1972 cohort.

3. Retention Rates and Service Lengths by Changing Lottery Numbers Range for "True" Draftees, "Grays," and True Volunteers

In this section we assign different lottery numbers for "true" draftees, "grays," and true volunteers in the 1971 and the 1972 cohorts. For the 1971 cohort, the lottery numbers are assigned as follows: 1 through 150 for "true" draftees, 151 through 240 for "grays," and 241 through 366 for true volunteers. For the 1972 cohort the lottery numbers are: 1 through 90 for "true" draftees, 91 through 210 for "grays," and 211 through 366 for true volunteers. The following discussion summarizes the two reasons that led us to change lottery numbers for "true" draftees, "grays," and true volunteers in the 1971 and the 1972 cohorts.

First, when we look at the literature review, we understand that one's chances of being drafted were not the same for the 1971 and the 1972 cohorts. Because the lottery did not run smoothly during the early periods of 1970, there was great uncertainty about one's chances of being drafted. In the early period of the lottery system there was not a direct national call; that is, local boards had different lottery number ceilings. This caused different chances of being drafted for people who lived in different areas. To

solve this inequity among individuals, Selective Service established ceilings on lottery numbers that prevented many local boards from meeting their quotas. In other words, shortfalls occurred. The final solution to establish equity among individuals was the direct national call. The direct national call became a law in September1971. However, to overcome shortfalls like those that had occurred before, a higher number of enlistees was drafted in the early periods of the direct national call. Because Selective Service could not adjust immediately to the changes in the lottery draft system, fluctuations in the number of draft calls occurred in 1970 and 1971. On the other hand, the increase in the number of withdrawals from Vietnam during the period of the 1972 cohort decreased significantly the number of enlistees who were drafted. Contrary to the experience of the 1971 cohort , draft quotas were declared in advance for the 1972 cohort and were never exceeded. There was no further reform to the lottery system and the number of draft calls was reduced during this period. The purpose was a "zero draft" to establish the All-volunteer Force. These events made people in the 1972 cohort more certain about their chances of being drafted.

Second, based on the first part of my data analysis, it is not appropriate to use *same* lottery numbers for "true" draftees, "grays," and true volunteers in both the 1971 and the 1972 cohorts. Table 2 shows that there is a large difference in the number of "true" draftees between the 1971 and the 1972 cohorts. By comparing Figure 1 and Figure 2 we can realize the difference in behaviour of the "grays". We may conclude that accepting higher lottery number ceilings than necessary for "true" draftees in the 1972 cohort prevents us from seeing the behaviour of real "grays".

To get an idea of how high up the lottery number scale the Selective Service reached each month, I examined the number of enlistees for each lottery number. Each month, enlistees were drafted beginning from the lottery number 1, according to sequential lottery numbers until quotas were filled. After that, as the lottery number increased, the number of enlistees who joined the services decreased. However, it is hard to choose the particular lottery number separating the ones who were drafted from the ones who joined voluntarily because there might have been true volunteers who had lottery numbers smaller than the ceiling of monthly lottery draft number. I made a rough separation for the 1971 and the 1972 cohorts. According to my results, the lottery numbers of draftees were between 1 through 180 for the 1971 cohort, and between 1 and 110 for the 1972 cohort. It is apparent from these results that there was an important difference between lottery numbers of those who were drafted in the 1971 cohort and those drafted in the 1972 cohort.

As a result, in the 1971 cohort, we make the range of lottery numbers larger for "true" draftees, smaller for the "gray" area, and larger for true volunteers. In the 1972 cohort, we made the range of lottery numbers smaller for "true" draftees and larger for true volunteers.

Because I changed the range of lottery numbers for "true" draftees, "grays," and true volunteers, final populations would be different for both the 1971 and 1972 cohorts.

The following summarizes the reasons for deleting observations and the number of observations deleted from the original data sets[4] :

1. Due to draft-motivated volunteers: 197,764 were deleted from the 1971 cohort, and 124,066 from the 1972 cohort.
2. Due to volunteers whose service of accession was other than Army, Navy, Air Force, or Marine Corps: 7,255 were deleted from the 1971 cohort, and 3,291 from the 1972 cohort.
3. Due to unacceptable flag years: 31,798 were deleted from the 1971 cohort, and 23,760 from the 1972 cohort.
4. Due to erroneous entrance and separation dates for "true" draftees, "grays," and true volunteers: 8,176 were deleted from the 1971 cohort, and 11,340 from the 1972 cohort.
5. Due to zero lottery numbers: 5 were deleted from the 1971 cohort, and 2 from the 1972 cohort.

Table 7 shows the final populations for the 1971 and the 1972 cohorts. For further data interpretations, I will refer to the populations whose sizes are shown in this table.

Table 7. FINAL POPULATIONS FOR THE 1971 AND THE 1972 COHORTS: METHOD 2

	"True" draftees	"Grays"	True volunteers	Total
1971 COHORT	104,796	90,576	116,945	312,317
1972 COHORT	18,313	54,952	198,377	271,642

If we compare Table 7 with Table 2, we see that the number of enlistees in each category changed with new lottery number ranges. For the 1971 cohort, the number of "true" draftees and true volunteers increased, and the number of "grays" decreased. For

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4 Deleting reasons were explained in detail in the "Data Analysis" section of this thesis.

the 1972 cohort, the number of "true" draftees and "grays" decreased, and the number of true volunteers increased.

We examine separately the retention rates at the end of the first enlistment period and service lengths for the 1971 and the 1972 cohorts. By comparing the results with the first part of this chapter, we are able to realize the effect of using a different range of lottery numbers for "true" draftees, "grays," and true volunteers on estimated retention rates and service lengths.

a. Retention Rates for the 1971 and the 1972 Cohorts at the End of First Enlistment Period

Reenlistment rates at the end of first enlistment period are presented in Table 8 for the 1971 cohort, and in Table 9 for the 1972 cohort.

Table 8. REENLISTMENT RATE OF THE 1971 COHORT: METHOD 2

	Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"TRUE" DRAFTEES	104,796	14,109	13.5
"GRAYS"	90,576	22,466	24.8
TRUE VOLUNTEERS	116,965	40,082	34.3

Table 9. REENLISTMENT RATE OF THE 1972 COHORT: METHOD 2

	Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"TRUE" DRAFTEES	18,313	2,454	13.4
"GRAYS"	54,952	17,475	31.8
TRUE VOLUNTEERS	198,377	69,357	35.0

Comparing the retention rates for the new lottery number ranges in Table 3 and Table 4 with those for the old lottery numbers ranges in Table 8 and Table 9, I found mainly slight differences for both cohorts. The only noticeable difference was for the "grays" of the 1972 cohort. With the new lottery numbers ranges, the retention rate of "grays" in the 1972 cohort decreased by 2.2 percentage points. This change increased the difference in retention rates between "grays" and true volunteers in the 1972 cohort. However, the approximately 3 percentage point difference in retention rates between "grays" and true volunteers in the 1972 cohort is not large.

b. Service Lengths for the 1971 and the 1972 Cohorts

The following tables and figures summarize the results of service lengths for the 1971 and 1972 cohorts. Table 10 and Figure 3 show service lengths for the 1971 cohort. Table 11 and Figure 4 show the service lengths for the 1972 cohort.

Table 10. SERVICE LENGTHS FOR THE 1971 COHORT: METHOD 2

Length of Service Period (years).	"True" Draftees (%).	"Grays" (%).	True Volunteers (%).
0-1	10.6	13.8	15.7
1-2	79.6	38.7	20.4
2-3	5.4	15.0	18.6
3-4	0.8	15.4	19.4
4-5	0.6	2.6	3.7
5-6	0.5	2.3	3.2
6-7	0.5	1.6	2.5
7-8	0.6	2.0	2.8
8-9	0.3	1.1	1.8
9-10	0.2	0.9	1.2
10-11	0.2	0.5	0.9
11-12	0.1	0.5	0.7
12-13	0.2	0.4	0.7
13-14	0.1	0.5	0.7
14-15	0.1	0.3	0.6
15-16	0.1	0.4	0.5
16>	0.1	4.0	6.6
Total	100	100	100

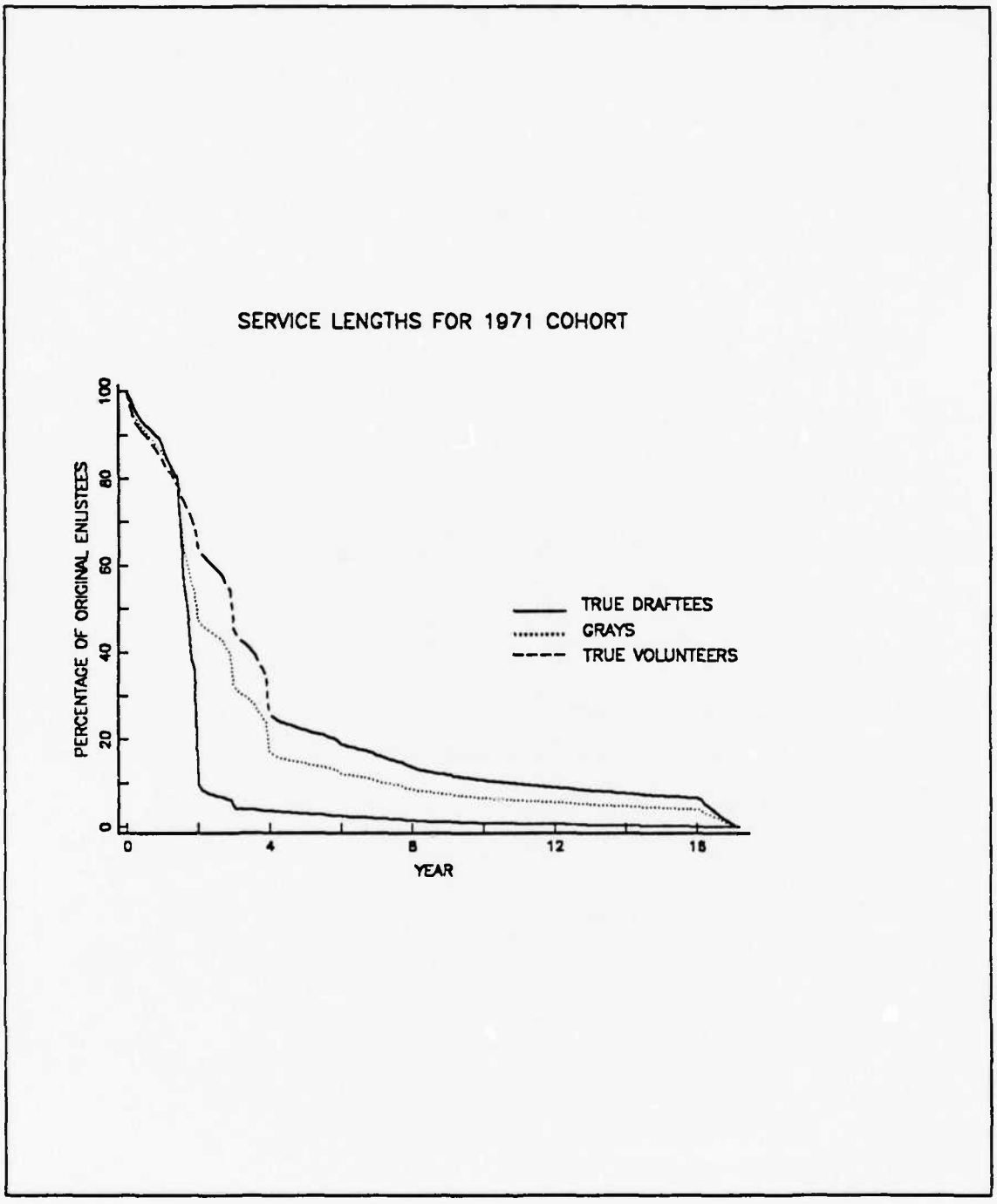

Figure 3. Service lengths for the 1971 cohort: Method 2

Table 11. SERVICE LENGTHS FOR THE 1972 COHORT: METHOD 2

Length of Service Period (years).	"True" Draftees (%).	"Grays" (%).	True Volunteers (%).
0-1	13.4	15.2	15.5
1-2	75.5	20.5	17.8
2-3	6.4	19.8	20.3
3-4	0.9	20.5	19.7
4-5	0.6	3.8	4.1
5-6	0.7	3.2	3.4
6-7	0.6	2.2	2.5
7-8	0.6	2.7	2.9
8-9	0.2	1.7	1.9
9-10	0.2	1.1	1.2
10-11	0.3	0.7	0.8
11-12	0.1	0.7	0.8
12-13	0.2	0.6	0.8
13-14	0.1	0.6	0.6
14-15	0.1	0.5	0.5
15>	0.1	6.2	7.2
Total	100	100	100

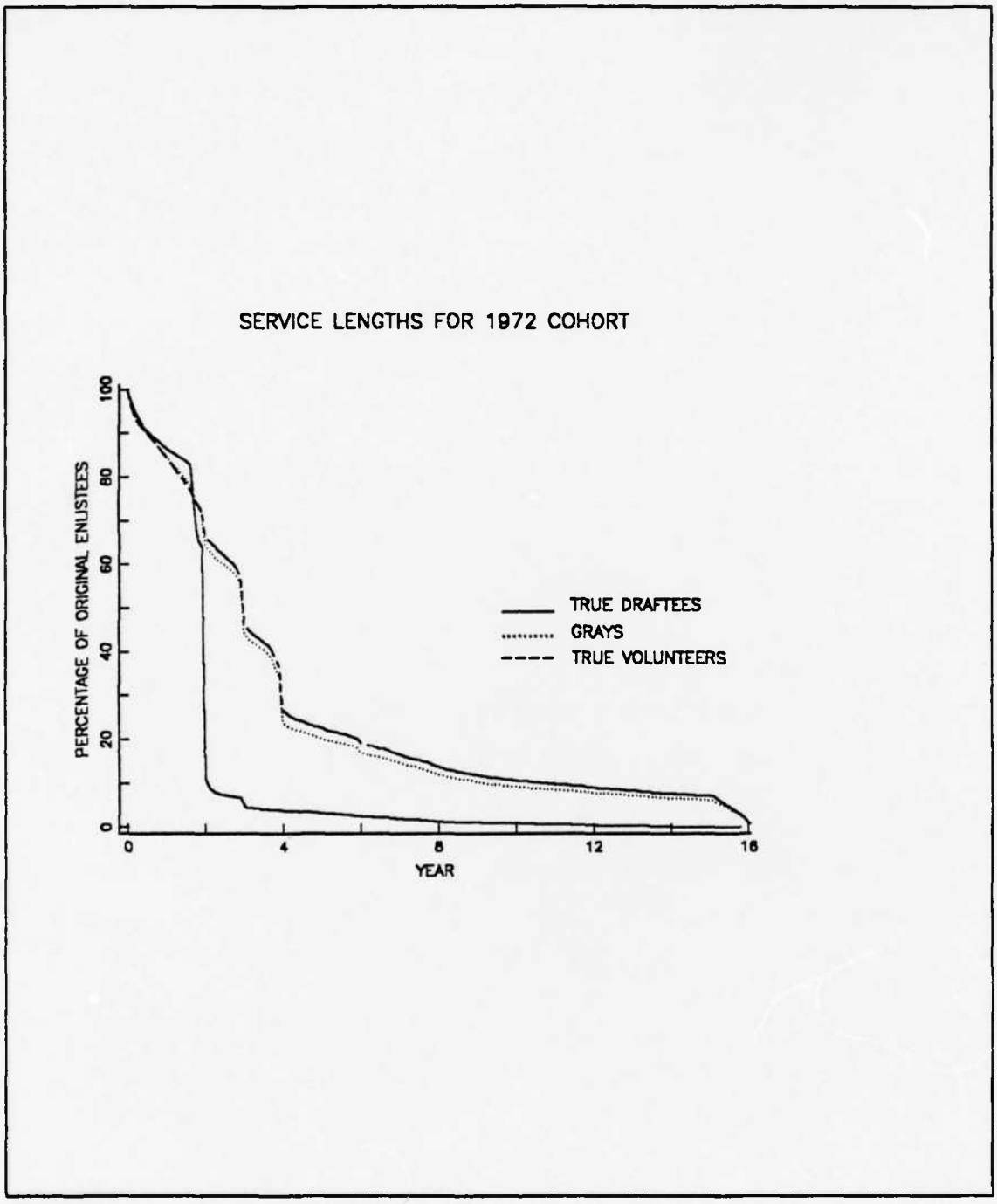

Figure 4. Service lengths for the 1972 cohort: Method 2

By comparing the service lengths in old lottery numbers ranges with those in new lottery numbers ranges, I found slight differences in the service lengths of the 1971 cohort. With new lottery numbers, service lengths of the 1972 cohort did not change much for "true" draftees and true volunteers. The only change in service lengths was for "grays" of the 1972 cohort. Comparison of Figure 4 with Figure 2 shows that new lottery number ranges make more distinguishable the difference between service lengths of "grays" and true volunteers in the 1972 cohort.

C. CONCLUSIONS

I have examined the retention rates and service lengths in the 1971 and the 1972 cohorts separately. We conclude that retention rates at the end of the first enlistment period are higher and service lengths are longer for true volunteers than for "true" draftees. Differences in retention rates and service lengths between "true" draftees and true volunteers are significant for manpower policy decisions.

In the second part of my study, I changed the range of lottery numbers for "true" draftees, "grays," and true volunteers by relying on the literature review and the difference which I found between monthly ceilings of lottery numbers for the 1971 cohort and those for the 1972 cohort. Nevertheless, I could not get large differences for both the 1971 and the 1972 cohorts. In spite of this, I still believe that the appropriate ranges of lottery numbers used to distinguish "true" draftees, "grays," and true volunteers in the 1971 cohort are different from those that should be used for the 1972 cohort. Even a careful examination of the lottery numbers of draftees month by month for the 1971 cohort did not lead to the conclusion that we should change substantially the range of lottery numbers previously used to define "true" draftees. Because the lottery number range of "true" draftees in the 1971 cohort is smaller than it should be, it does not include "grays" and so does not bias the results for "true" draftees. However, the lottery numbers recommended by DMDC --1 through 120 for "true" draftees, 121 through 240 for "grays," 241 through 366 for true volunteers-- do not seem reasonable for the 1972 cohort. In the 1972 cohort, the lottery range of "true" draftees is higher than it should be and so includes "grays;" therefore, the results for "true" draftees are biased.

However, we may conclude by comparing the "grays" in the 1971 and the 1972 cohorts that there were very few draft-motivated volunteers in the 1972 cohort.

III. EFFECT OF EDUCATIONAL FACTORS ON RETENTION RATES AND SERVICE LENGTHS

In this chapter, I deal with the effect of educational factors on retention rates and service lengths. In order to examine the effect of educational factors, I divide both the 1971 and the 1972 cohorts into two categories as described in Chapter 1: high school diploma graduates(HSDGs) and non-high school diploma graduates(NHSDGs). Note that I accept enlistees who had at least a high school education as HSDGs and enlistees who had education lower than high school as NHSDGs. I compare HSDGs and NHSDGs for "true" draftees, for "grays," and for true volunteers in the 1971 and the 1972 cohorts separately. The 1971 and the 1972 cohorts are divided into three sections according to lottery numbers as in the last part of Chapter 2. Enlistees are assigned lottery numbers 1 through 150, 151 through 240, and 241 through 366 for the 1971 cohort, and 1 through 90, 91 through 210 and 211 through 366 for the 1972 cohort. I assume enlistees who were in the first section and whose service of accession was preinductee or inductee to be "true" draftees, enlistees in the second section to be "grays," and enlistees in the third section and whose service of accession was Army, Navy, Air Force or Marine Corps to be true volunteers.

Final populations for the 1971 and the 1972 cohorts are presented in Table 12. These are the populations that will be referred to in further data interpretations.

Table 12. FINAL POPULATIONS FOR THE 1971 AND THE 1972 COHORTS: STUDY OF EDUCATIONAL FACTORS

	"True" Draftees	"Grays"	True Volunteers	Total
1971 Cohort	104,737	90,561	116,929	312,227
1972 Cohort	18,309	54,948	198,370	271,627

Differences in the final populations for the 1971 and the 1972 cohorts from the last part of Chapter 2 are because of the enlistees who had zero values in their "Highest Year of Education" variable. A zero value shows that information about these enlistees could not be obtained. All information about the enlistees who had a zero value in the

"Highest Year of Education" variable is deleted. Deletions due to a zero value are 90 for the 1971 cohort and 15 for the 1972 cohort.

I examine retention rates for HSDGs and NHSDGs at the end of the first enlistment period. Table 13 and Table 14 present retention rates at the end of the first enlistment period for the 1971 and the 1972 cohorts.

Table 13. RETENTION RATES AT THE END OF FIRST ENLISTMENT PERIOD FOR THE 1971 COHORT: STUDY OF EDUCATIONAL FACTORS

		Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"True" Draftees	High school	81,991	9,755	11.9
	Non-high school	22,746	4,343	19.1
"Grays"	High school	64,283	14,975	23.3
	Non-high school	26,298	7,484	28.5
True Volunteers	High school	68,503	24,651	36.0
	Non-high school	48,426	15,427	31.9

Table 14. RETENTION RATES AT THE END OF FIRST ENLISTMENT PERIOD FOR THE 1972 COHORT: STUDY OF EDUCATIONAL FACTORS

		Number of Enlistees	Number of Reenlistees	Reenlistment Percentage
"True" Draftees	High school	14,715	1,809	12.3
	Non-high school	3,594	645	17.9
"Grays"	High school	38,725	12,571	32.5
	Non-high school	16,223	4,904	30.2
True Volunteers	High school	128,428	47,431	36.9
	Non-high school	69,942	21,922	31.3

I also examine service lenghts of HSDGs and NHSDGs. The following Tables and Figures summarize the results for HSDGs and for NHSDGs. Table 15 and Figure 5 through Figure 7 present service lengths for the 1971 cohort. Table 16 and Figures 7 through 9 present service lengths for the 1972 cohort.

Table 15. SERVICE LENGTHS FOR THE 1971 COHORT: STUDY OF EDUCATIONAL FACTORS

Length of Service (year)	"True" Draftees (%)		"Grays" (%)		True Volunteers (%)	
	High school	Non-high school	High school	Non-high school	High school	Non-high school
0-1	10.4	18.7	11.2	20.0	12.2	20.7
1-2	80.9	67.7	40.3	34.4	16.8	25.3
2-3	5.0	6.8	13.9	17.9	16.7	21.4
3-4	0.6	1.2	17.1	11.0	23.7	13.2
4-5	0.5	1.1	2.4	3.2	3.7	3.8
5-6	0.4	1.0	2.3	2.4	3.5	2.8
6-7	0.4	0.7	1.5	1.8	2.8	2.2
7-8	0.5	0.9	2.0	1.9	3.3	2.1
8-9	0.3	0.4	1.1	1.1	2.1	1.3
9-10	0.2	0.3	0.9	0.8	1.4	0.9
10-11	0.1	0.2	0.5	0.6	1.0	0.7
11-12	0.2	0.2	0.5	0.4	0.8	0.6
12-13	0.1	0.2	0.5	0.5	0.8	0.6
13-14	0.1	0.2	0.4	0.4	0.8	0.6
14-15	0.1	0.1	0.3	0.4	0.6	0.4
15 >	0.2	0.3	5.1	2.7	9.8	3.4
Total	100	100	100	100	100	100

Table 16. SERVICE LENGTHS FOR THE 1972 COHORT: STUDY OF EDUCATIONAL FACTORS

Length of Service (year)	"True" Draftees (%)		"Grays" (%)		True Volunteers (%)	
	High school	Non-high school	High school	Non-high school	High school	Non-high school
0-1	10.8	24.2	12.5	21.8	12.3	21.3
1-2	78.8	61.8	19.0	23.9	14.9	23.3
2-3	6.3	6.8	18.8	22.3	19.0	22.5
3-4	0.8	1.3	23.4	13.3	23.1	13.6
4-5	0.4	1.3	3.7	4.0	4.1	4.2
5-6	0.6	1.1	3.6	2.4	3.8	2.5
6-7	0.6	0.8	2.3	2.2	2.6	2.3
7-8	0.5	0.8	2.8	2.1	3.3	2.3
8-9	0.2	0.3	1.9	1.3	2.1	1.3
9-10	0.2	0.4	1.3	0.9	1.5	0.8
10-11	0.2	0.3	0.7	0.5	0.9	0.6
11-12	0.2	0.3	0.7	0.7	0.8	0.7
12-13	0.1	0.2	0.7	0.6	0.9	0.6
13-14	0.1	0.2	0.5	0.4	0.7	0.4
14-15	0.1	0.1	0.6	0.4	0.6	0.4
15 >	0.1	0.1	7.5	3.2	9.4	3.2
Total	100	100	100	100	100	100

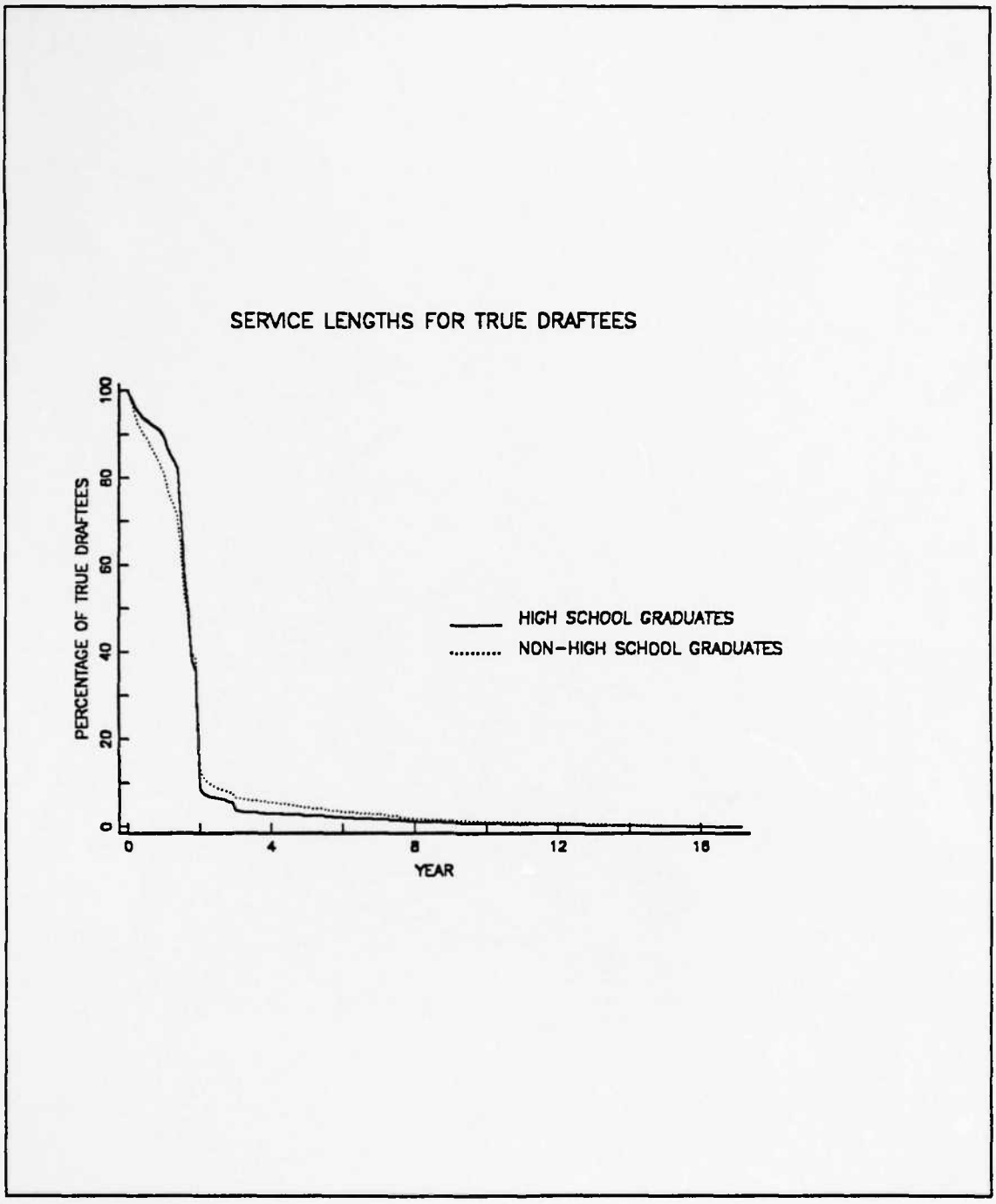

Figure 5. Service lengths for "true" draftees in the 1971 cohort: Study of Educational Factors

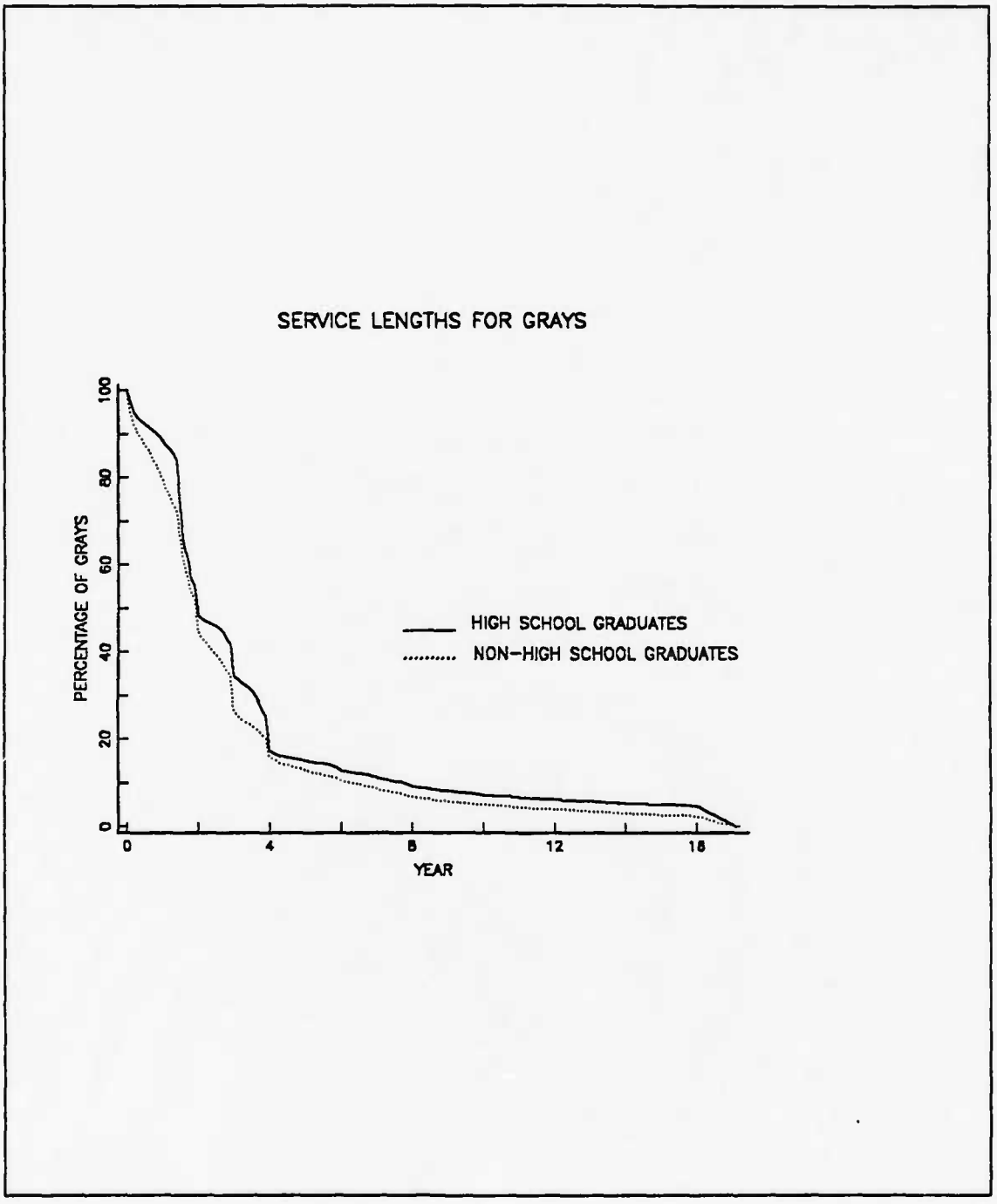

Figure 6. Service lengths for "grays" in the 1971 cohort: Study of Educational Factors

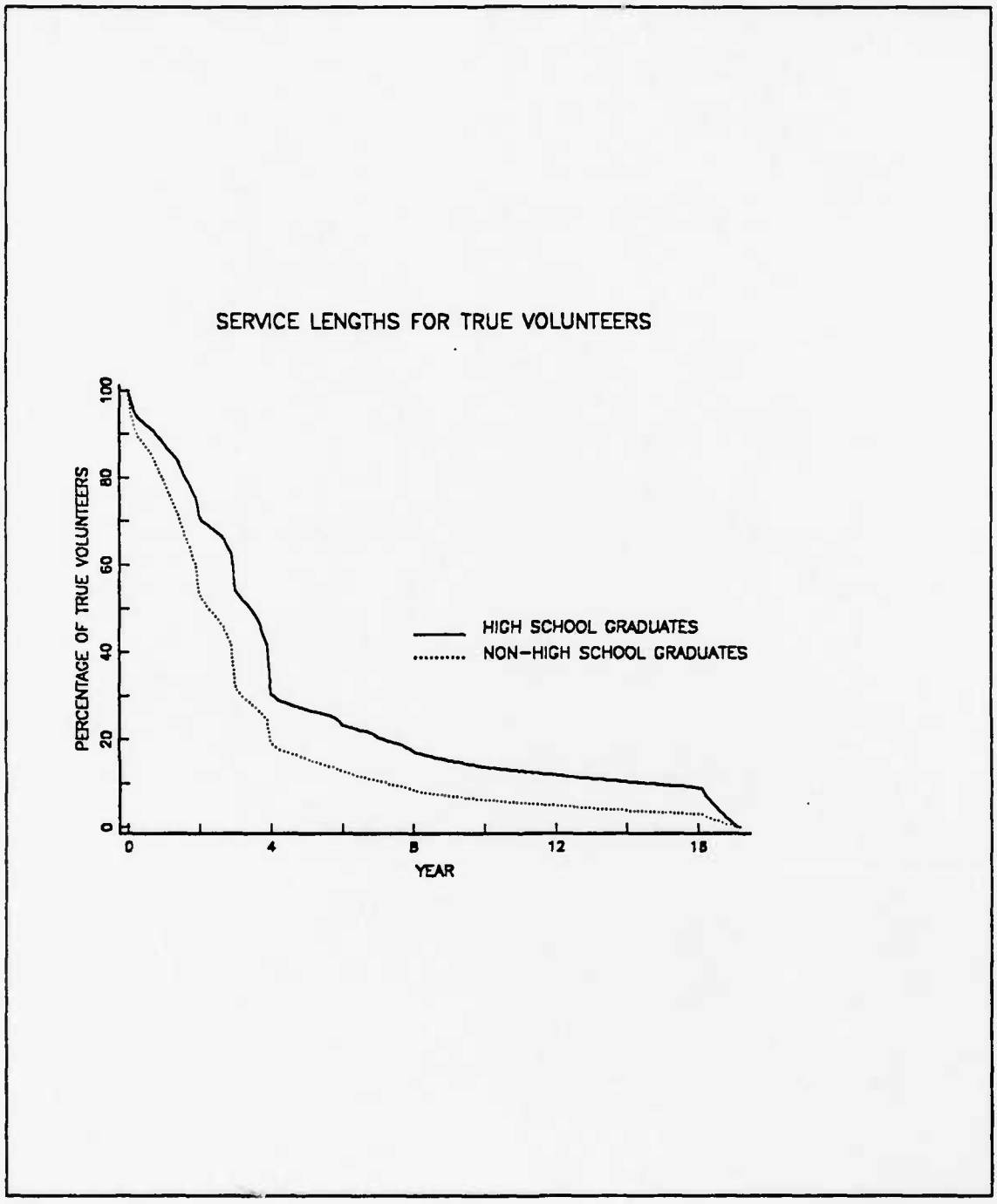

Figure 7. Service lengths for true volunteers in the 1971 cohort: Study of Educational Factors

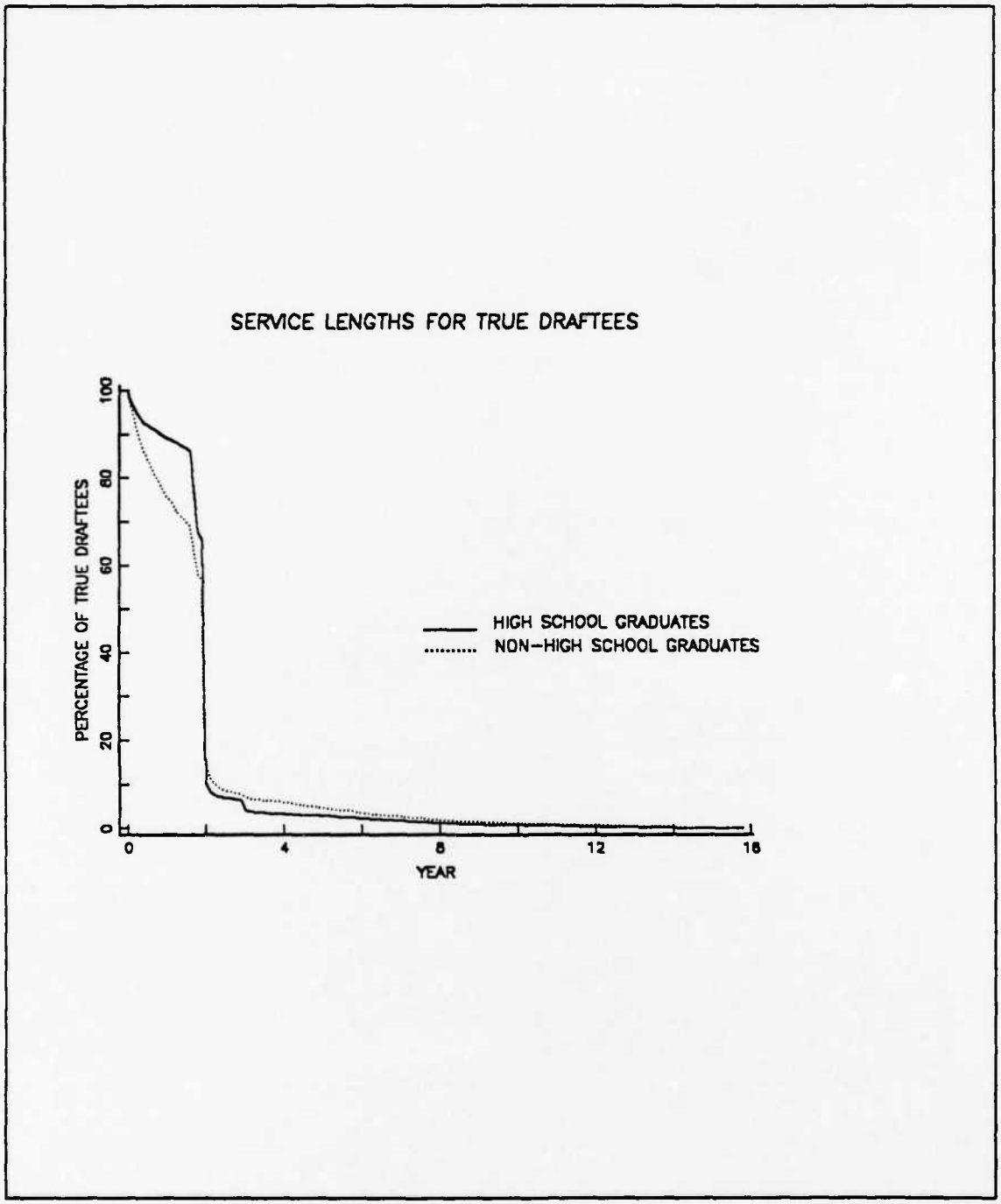

Figure 8. Service lengths for "true" draftees in the 1972 cohort: Study of Educational Factors

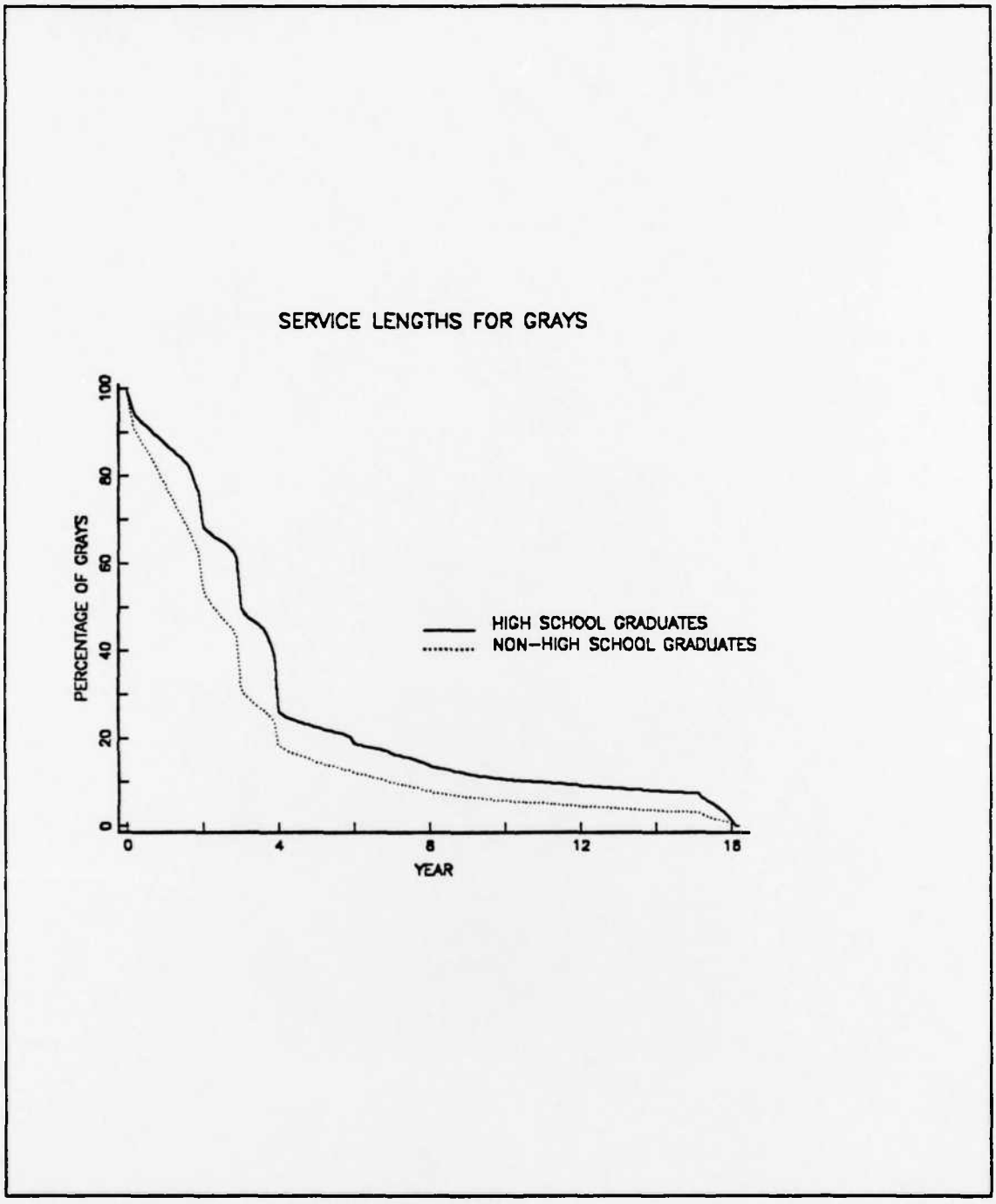

Figure 9. Service lengths for "grays" in the 1972 cohort: Study of Educational Factors

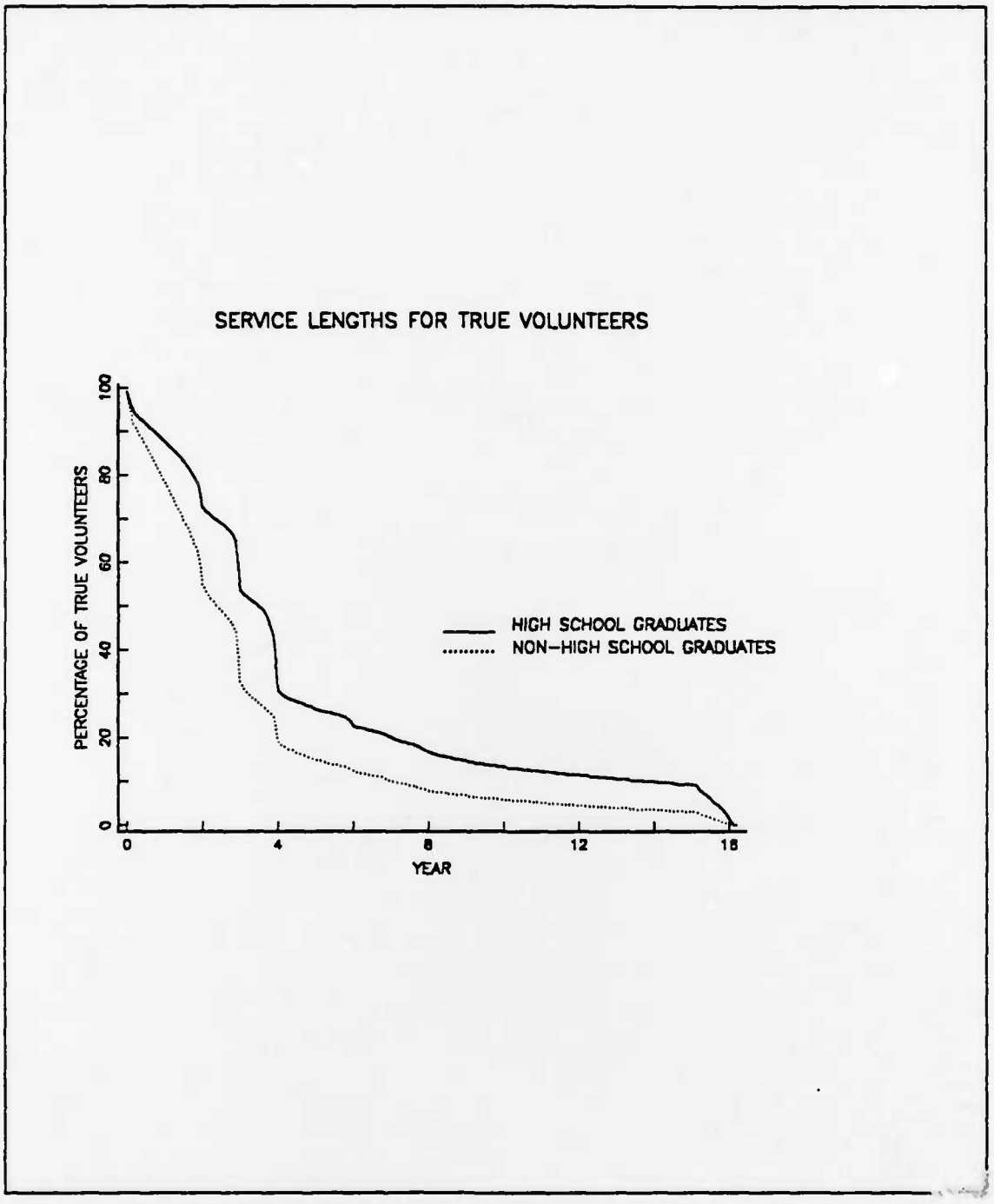

Figure 10. Service lengths for true volunteers in the 1972 cohort: Study of Educational Factors

A. CONCLUSIONS

Table 13 and Table 14 show the retention rates at the end of the first enlistment period for high school diploma graduates (HSDGs) and for non-high school diploma graduates (NHSDGs) in the 1971 and the 1972 cohorts.

Retention rates of "true" draftees at the end of the first enlistment period were slightly higher for NHSDGs than HSDGs in both the 1971 and the 1972 cohorts. On the other hand, the retention rates of true volunteers were higher for HSDGs than NHSDGs in both the 1971 and the 1972 cohorts. According to the results for "grays," high school and non-high school diploma graduates did not show the same retention behaviour in the 1971 and the 1972 cohorts: the retention rate for HSDGs was lower than for NHSDGs in the 1971 cohort, but it was higher than for NHSDGs in the 1972 cohort. Those results suggest the following conclusions.

First, because "true" draftees without high school diplomas had less opportunity than those with high school diplomas to find a better job out of the military services, they were more likely to stay in the military services.

Second, true volunteers with high school diplomas had voluntarily rejected civilian alternatives in favor of the military. Therefore, they were more likely to be successful and to reenlist than true volunteers without high school diplomas. Because high school is a sound indicator of the likelihood of succesfully completing the first enlistment period [Ref. 3: pp.10], HSDGs had higher chances than NHSDGs of being successful in the military services.

We cannot rely on the retention rate results of "grays" because we do not know the number of true draftees and of true volunteers in the "gray" area. The reason is that for "true" draftees, NHSGs had higher retention rates than HSDGs, whereas for true volunteers the reverse was the case. Therefore, if there were more "true" draftees than true volunteers in the "gray" area of the 1971 cohort, retention rates at the end of the first enlistment period would have been higher for NHSDGs than if there were more true volunteers than "true" draftees.

I also examine service lengths of HSDGs and NHSDGs in the 1971 and the 1972 cohorts. Table 15 and Table 16 give the results in percentages for years of services. By looking at Figure 5 through Figure 10, I conclude the following about HSDGs and NHSDGs.

Sudden decreases in the number of enlistees are observed in the first two years of service for "true" draftees, and in the first four years of service for true volunteers. After the first enlistment period, decreases in the percent of enlistees were almost the same for

HSDGs and NHSDGs. After the first reenlistment decision, enlistees were on their way to being careerists, and high school education had very little effect on their continuation rates. However, it is apparent from Figure 5 through Figure 10 that except for "true" draftees, HSDGs had longer service periods in the military. Note that the most important reason for HSDGs to have longer service periods is that they had lower attrition rates in the initial enlistment period.

In the Syllogistics study, continuation rates for "true" draftees and true volunteers are examined in detail. [Ref. 9] The assumptions they use to identify the number of "true" draftees and true volunteers during lottery draft years allow them to get more precise results. The Syllogistics researchers divide the lottery numbers into three draft probability categories: high draft-probability lottery numbers were 1 through 120; medium draft-probability numbers were 121 through 240; and low draft-probability numbers were 241 through 365. Note that Syllogistics doesn't include people born on February 29. They are sure about number of true volunteers who were assigned lottery numbers 241 through 365 because the lottery number called had never reached 241 between FY 1970 and FY 1972. Because the three categories of draft numbers are of almost equal size, the Syllogistics researchers assume that, if there were no draft calls at that time, there would have been almost the same number of volunteers in each of three sections. By substracting the number of true volunteers from the number of draftees whose lottery numbers were 1 through 120, they obtain the number of "true" draftees.

The Syllogistics researchers examine the continuation rates of HSDGs and NHSDGs for "true" draftees and for true volunteers. They find that true volunteers with high school diplomas and "true" draftees without high school diplomas had higher rates of entry into careers.

In spite of using different techniques from that of the Syllogistics study, I find almost the same main results. Relying on the results, we may conclude for the 1971 and the 1972 cohorts that NHSDG "true" draftees and HSDG true volunteers were more likely to stay in the military.

IV. CONCLUSION

In this study, I have examined the retention rates and service lengths, and how they are affected by educational factors, for the 1971 and the 1972 cohorts. To do so, I have used two different methods(Method 1 and Method 2) for dividing enlistees by lottery number into "true" draftees, "grays," and true volunteers.

Results showed that retention rates at the end of the first enlistment period were higher for true volunteers than for "true" draftees in both cohorts. Retention rates for true volunteers were more than twice as great as those for "true" draftees. Except for "grays" in the 1972 cohort, retention rates for the 1971 and the 1972 cohorts were similar in both Method 1 and Method 2. By using Method 2, the difference in retention rates between "grays" and true volunteers in the 1972 cohort was increased slightly.

By examining the service lengths of draftees in the 1971 and the 1972 cohorts, I conclude that service lengths in the first enlistment period were higher for true volunteers than for "true" draftees in both cohorts. A sudden decrease in the number of draftees was observed at the end of the two years of service period. The reason is that the first enlistment period for draftees was two years. Each year during the first four years of service for true volunteers, between 15 and 20 percent left the military. However, for true volunteers, the highest percent left during or at the end of the fourth year of service. The reason is that the first enlistment period for volunteers was typically three or four years.

Another notable finding is the different retention behaviour of "grays" in the 1971 and 1972 cohorts. In the 1971 cohort, the retention behaviour of "grays" followed a pattern between "true" draftees and true volunteers. On the other hand, the retention behaviour of "grays" in the 1972 cohort was very close to that for true volunteers. I tried to estimate how high up the lottery number scale the Selective Service reached each month. Relying on my results and on the literature review, I concluded that one's chances of being drafted was different in the 1971 cohort than in the 1972 cohort. Contrary to the case for the 1971 cohort, there was much greater certainty about one's chance of being drafted in the 1972 cohort. This certainty about one's chance of being drafted virtually wiped out the "gray" area in the 1972 cohort.

As a result, by examining retention rates and service lengths for "true" draftees and true volunteers, I conclude that retention rates at the end of the first enlistment period

were higher and service lengths longer for true vounteers than for "true" draftees. Differences in retention rates and service lengths between "true" draftees and true volunteers are significiant for manpower policy decisions.

I also examined the effect of educational factors on retention rates, and on service lengths in the 1971 and the 1972 cohorts. Except for "grays", the effect of educational factors was consistent for "true" draftees and true volunteers in both two cohorts. Results show that the retention rates of "true" draftees at the end of the first enlistment period were slightly higher for NHSDGs than for HSDGs in both cohorts. On the other hand, the retention rates of true volunteers were higher for HSDGs than for NHSDGs in both cohorts. HSDGs and NHSDGs in the "gray" area did not show the same retention behaviour in the 1971 and the 1972 cohorts: the retention rate for HSDGs was lower than for NHSDGs in the 1971 cohort, but it was higher than for NHSDGs in the 1972 cohort. Relying on my results, I offer the following conclusions.

First, because "true" draftees without high school diplomas had less opportunity than did those with high school diplomas to find a better job out of the military, they were more likely to stay in the military.

Second, true volunteers with high school diplomas had voluntarily rejected civilian alternatives in favor of the military. Therefore, they were more likely to be successful and to reenlist than were true volunteers without high school diplomas.

Third, we cannot rely on the retention rate results of "grays" because we do not know the number of "true" draftees and of true volunteers in the "gray" area. The reason is that for "true" draftees, NHSDGs had higher retention rates than did HSDGSs, whereas for true volunteers the reverse was the case. Therefore, if there were more "true" draftees than true volunteers in the "gray" area of the 1971 cohort, retention rates at the end of the first enlistment period would have been higher for NHSDGs than if there were more true volunteers than "true" draftees.

By examining the effect of educational factors on service lengths in the 1971 and the 1972 cohorts, I conclude the following about HSDGs and NHSDGs.

Sudden decreases in the number of enlistees are observed in the first two years of service for "true" draftees, and in the first four years of service for true volunteers. After

the first enlistment period, decreases in the percent of enlistees were almost the same for HSDGs and NHSDGs. After the first enlistment decision, enlistees were on their way to being careerists, and high school education had very little effect on their continuation rates.

Finally, I conclude for the 1971 and the 1972 cohorts that NHSDG "true" draftees and HSGD true volunteers were more likely to stay in the military.

APPENDIX CHRONOLOGY OF IMPORTANT EVENTS

This chronology of important events is from Appendix A of Reference 2.

December 1969	Lottery draft begins.
January 1970	Program Evalutaion Group, Project Volunteer Committee, reports All Volunteer Force is feasible if sufficient incentives are made available.
February 1970	The President's Advisory Commission sends to President Nixon its report recommending immediate entry level pay raises for military personnel and the end of the draft in 1971.
March 1970	National Security Council decision to set aside $3.5 billion in FY1973 funds to move to a volunteer force.
April 1970	President Nixon announces the Administration's decisions to seek military pay raises and an extension of the draft beyond July 1971, and to move toward ending the draft.
August 1970	Project Volunteer Committee submits its report to the Secretary of Defense recommending a program to reach an All Volunteer Force.
October 1970	Secretary Laird informs Secretaries of Military Departments and Chairman of the Joint Chiefs of Staff that the "goal is to reach zero draft calls by the end of FY1973."
October 1970	General William A. Westmoreland announces in a speech to the Association of the U.S. Army that the Army will leave "no stone unturned" to reach a volunteer force.
October 1970	Lt. General George Forsythe appointed as the Special Assistant for the Modern Volunteer Army.
December 1970	Secretary Laird approves $1,5 billion Project Volunteer program for FY1972.
December1970	First Annual Joint DOD Recruiting Conference held to plan for expansion and strengthening of Recruiting Services.
January 1971	President sends to Congress legislation to increase military pay, to reform the draft, and to extend the draft until July 1973.
January 1971	Army reprograms funds to initate Project Volar to improve Service living conditions and to conduct paid radio-TV advertising campaign.
February 1971	House and Senate Armed Services Commitees begin hearings on the Administration's bills and other bills related to the volunteer force.

February 1971	Army offers attractive new enlistment options: unit-of-choice, geographic area of choice, school and career field of choice.
March 1971	Army begins paid radio-TV advertising campaign.
April 1, 1971	House approves most of the Administration's program but doubles the Administration's recommendations for increased military compensation.
June 24, 1971	Senate passes amended version of House bill and reduces the compensation provisions to the Administration's proposals.
July 1971	Under FY1972 budget, new funds become available for volunteer force(actions which do not require legislative authority).
July 30, 1971	House and Senate conferees agree on compromise bill to extend and reform the draft and to increase compensation $2.4 billion.
September 30, 1971	In PublicLaw 92-129, Congress enacts legislation to extend draft for two years, to end undergraduate deferments, to implement a direct national call, and to provide substantial increase in entry pay, and other volunteer force legislation.
September 1971	Air Force offers guaranteed school-of-choice in return for six-year enlistment.
December 1971	Office of Management and Budget limits FY1973 Project Volunteer budget to continuation of existing program; expansion of the program is disapproved.
January 1972	Central All Volunteer Force appointed to furnish staff assistance in the volunteer force effort.
March 1972	Special Pay Act of 1972, designed to solve special manning problems of the volunteer force, is introduced in Congress; never gets out of committee.
May 1972	Ground Combat Enlistment Bonus initiated in Army and Marine Corps.
June 1972	Rear Admiral (later Vice Admiral) Emmit Tidd appointed Commander, Naval Recruiting Command, to reverse downward trend in Navy recruiting.
September 1972	Congress passes Uniformed Services Health Professions Revitalization Act of 1972, authorizing medical university for the Services and increasing medical scholarships.
August 1972	Congress approves $14 million supplemental funds for Navy recruiting and advertising.
December 1972	Last draft call is issued.

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